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ABSTRACT TITLE:

Soil Moisture and Vegetation Observations During SGP'99 Using the PALS Airborne Microwave Radiometer

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ABSTRACT TEXT:

Text block boundaries are fixed. Abstract cannot exceed boundaries.

A new airborne sensor has been developed that will contribute to investigating the benefits of using a multi-frequency, multi-polarization, passive and active approach for microwave sensing of soil moisture. This approach has the potential of providing improved soil moisture retrievals over varied terrain. The Passive/Active L/S-band Sensor (PALS) is a combined radiometer and radar instrument designed to be flown on a C-130 aircraft. The instrument operates at 1.2, 1.4, 2.7, and 3.15 GHz with dual-polarization, at a fixed incidence angle of between 40 and 50 degrees. Flights of the PALS instrument took place in conjunction with ground sampling of soil and vegetation characteristics over field sites in Oklahoma in July 1999 as part of the 1999 Southern Great Plains (SGP99) experiment. The flights of the PALS instrument were conducted successfully. Initial processing of the data shows good instrument sensitivity and calibration stability for the six days of flight data acquired. Data were acquired before and after a significant rain event, enabling microwave signatures of both soil wetting and drying conditions to be observed. The data were acquired over a variety of surface types from bare soil to dense vegetation. The results show the sensitivities of the different channels to soil moisture and vegetation, and the retrieved soil moisture is compared with ground observations

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